

Abstract

A command sequence for an autonomous UAV mission is optimized by simulating the performance of a mission in a model environment. Using a genetic algorithm, neural net, or other suitable technique this command sequence is then optimized, to improve the outcome of the mission. A factor in selecting an optimal command sequence will be its compressability. A set of one or more optimal command sequences is compiled. Each optimal command sequence is encoded into an algorithmic active packet of minimum size for uploaded to the UAV, which then executes the mission. To track the UAV in its performance of the mission without compromising its location, the active packets are executed in the simulated environment. The simulated environment is continually updated with the most current available information. The simulation results are an approximation of the current state of the UAV.